XL. *On the Economy of the Genus* Palmon *of Dalman, with Descriptions of several Species belonging thereto. By* J. O. Westwood, F.L.S., &c.

[Read 5th March, 1844.]

At the meeting of the Linnæan Society on the 6th February last, a very interesting paper was read by J. Curtis, Esq., F.L.S., containing descriptions of two singular nests of Hymenopterous insects, which he had recently obtained from Brazil: one of them consisted of a very numerous assemblage of the cocoons of a Tenthredinideous insect so closely packed together that when transversely cut the mass had very much the appearance of a piece of honeycomb, many of the cells being hexagonal, pentagonal, &c.; the whole was enclosed in a thick cottony covering, evidently spun by the larvæ in common, previous to the formation of the cocoons; and Mr. Curtis was led to believe that the object of this covering was to prevent *Ichneumon* flies, of which there is a vast number of species in Brazil, from depositing their eggs in the cocoons enclosed within. The great resemblance which exists between the appearance of the mass of cocoons described by Mr. Curtis and the masses of eggs of the *Mantidæ*, at once called to my mind some insects in my collection which at once disproved this suggestion of Mr. Curtis; and as they belong to a genus to whose history some interest is attached, I beg leave to offer the following remarks upon, and descriptions of them to the Entomological Society.

The instinct by which the females of the parasitic families *Ichneumonidæ*, *Chalcididæ* and *Proctotrupidæ* are taught to deposit their eggs in the most seemingly secure retreats of their prey, is one of the greatest interest. That species of *Chalcididæ*, for instance, not possessing exserted ovipositors, should be enabled to detect their prey and penetrate the thick solid galls of the willow leaf or the hard egg-cases of the *Blattæ*, is not more worthy of attention than that other species possessing long exserted but extremely delicate ovipositors should be able to penetrate the woolly bedeguar or the thick flossy outer covering of the eggs of the *Mantidæ*, and yet all these circumstances take place.

In addition to a short notice by myself in the second volume of my "Modern Classification of Insects," the only statement I have hitherto met with respecting the last mentioned circumstance is

the following, published by an anonymous writer in the Entomological Magazine, vol. iii. p. 178, "During the winter of 1834 I observed in Cephalonia on grass, the asphodel and other plants, particularly in marshes, brown ovoid masses resembling the cocoons of small moths, and on examining them more closely found that they were tough brownish white, composed of layers of scales placed with great regularity, and forming cells in series; the cells contained a yellowish liquid like the yolk of an egg. Having several specimens I detected in one a minute white grub in some of its cells: this was in December, 1833. On the 27th of May, happening to look at one which lay in my desk, I observed four or five minute *Chalcidæ* settled on it, and upon opening it to discover whether they were the real occupants or intruders, I discovered several emerging and perfectly formed. They are minute, about two lines in length, not including the ovipositor, black, with part of the body and the feet reddish, hinder legs variegated and thighs thickly incrassated, eyes red, antennæ clavate, oviduct exserted and twice the length of the body. It appeared to make fully as much use of its hind legs as of its wings, leaping to a considerable distance. In some specimens the oviduct was four times the length of the body and recurved. On the 24th May I found several young *Mantes* in the desk, and removing them I placed one of the excrescences under a tumbler where it would not be disturbed for a few days; several young *Mantes oratoriæ* made their appearance, which removed all doubts as to the excrescence not being a mass of eggs. The young *Mantes* devoured each other, and the number diminishing I let them out."

The short description of the parasites contained in the preceding account is sufficient at once to point out the generic group to which they belong; an elongated exserted ovipositor, incrassated hind thighs and clavate antennæ, being the characters of the genus *Palmon* of Dalman, founded in the Swedish Transactions for 1825 upon three species, observed only by that author in gum copal, and which were considered by him as intermediate between the genera *Leucospis* and *Torymus* (*Callimome*, Spin.) This treatise of Dalman has been overlooked by Mr. Walker in his various monographs upon this family, in one of which (Entom. Mag. vol. i. p. 118) he has evidently described a species of this group from the south of France under the name of *Priomerus pachymerus*, and of which a beautiful figure by Mr. Haliday was published in the "Entomologist."

Having received several species of this genus, natives of Brazil,

the Isle of France, King George's Sound, Austria and Egypt from Dr. Klug, M. V. Andouin, and other distinguished Entomologists, I shall terminate this notice with a description of them and the other species noticed by the previous authors above mentioned.

Sp. 1. *Palmon bellator*, Dalman, in Kongl. Vetensk. nya Handl. (Swedish Trans. 1825, p. 390, tab. v. fig. 21, 22, 23.)

Cyaneus, abdomine pedibusque pallide ferrugineis; femoribus posticis concoloribus multidenticulatis, denticulis circiter 9 obscuris inæqualibus, antennarum scapo flavo, flagelli clava maxima brunnea, quam caput longiore; alis hyalinis, colore fuliginoso diluto tinctis, nervo ordinario ramuloque stigmaticali obscurioribus.

Long. vix $1\frac{1}{2}$ lin. Paris. ovid. except.

Habitat in gum copal.

Sp. 2. *Palmon clavellatus*, Dalm., ut supra, tab. v. fig. 24.

Obscure cyaneus, abdomine brunneo, apice obscuro; pedibus ferrugineis, femoribus obscurioribus, posticis nigricantibus, multidentatis, antennarum flagello ferrugineo longitudine capitis sesquialtera, clava brunnea quam caput multo breviore ♀.

Magn. *P. bellatoris*.

Habitat in gum copal.

Sp. 3. *Palmon capitellatus*, Dalman, ut supra.

Obscure cyaneus, abdomine brunneo, apice obscuriore; pedibus ferrugineis, femoribus obscurioribus, posticis nigricantibus multidenticulatis, antennarum flagello flavo, gracile, capite duplo longiore clava oblonga brunnea, flagelli vix tertiam partem efficiente ♀.

Statura *P. clavellati*.

Habitat in gum copal.

Sp. 4. *Palmon pachymerus*.

Priomerus pachymerus, Walker, in Ent. Mag. i. 118.

Nigro-viridis, abdomine æneo-viridi, oviductu corpore dimidio longiore, antennis fuscis, pedibus rufis, alis subhyalinis, oculis ocellisque rufis, antennarum clava nigra, scapo rufo, abdomine

subtus rufo, coxis nigro-viridibus, thoracis disco obscure viridi, marginibus magis nitidis (♀).

Exp. alar. lin. $1\frac{3}{4}$.

Habitat in Gallia meridionali mense Julio.

Sp. 5. *Palmon religiosus*, Westw. (Tab. nostr. X. fig. 23, and details.)

Niger, subæneus; thorace tenuissime punctato; antennis nigricantibus, articulo basali luteo; abdomine piceo, subtus magis luteo, dorso æneo-tincto nitido; pedibus luteis, coxis posticis dentibusque femorum posticorum nigris, oviductu corpore ferè dimidio longiori (♀).

Long. corp. lin. $1\frac{1}{2}$.

Habitat in ovis *Mantidis religiosæ*. D. Kollar.

In Mus. D. Hope.

The female of this species is represented in Plate X. fig. 23, its natural size being indicated by the lines on the left side of fig. 23*c*. Figure 23*a* represents one of the mandibles, which is short, thick and obtusely tridentate; 23*b*, one of the maxillæ, with its four-jointed palpus; 23*c*, the mentum, with the ovate labium at its extremity, and the labial palpi, which are three-jointed and as long as the labium; 23*d*, one of the twelve-jointed antennæ, the three terminal joints forming a club and the second and third joints being separated by a minute annulus. These organs are inserted in the middle of the face between the eyes within a round slight common depression, the basal joint of the antenna reaching as high as the forehead; the anterior feet are simple, with the femora rather thickened in the middle; the calcar curved; the tarsi rather longer than the tibiæ, five-jointed and slender; the middle feet are slender, with the tibiæ as long as the tarsi, the calcar short and straight and very slender; and the hind feet (fig. 23*e*) have the femora incrassated and toothed; the tibiæ curved and terminating in a spine, spinulate within and having the minute calcar at its tip.

Sp. 6. *Palmon insularis*, Westw.

Cupreo-nigricans, vix tenuissime punctatus, collare magis cuprescenti; antennis nigricantibus, basi fuscis; abdomine chalybæo nitido, basi subluteo, oviductu vix corporis longitudine; pedibus anticis albidis, femoribus in medio infumatis, coxis et femoribus posticis cupreo-æneis apice tarsisque albidis (♀).

Long. corp. lin. $1\frac{1}{2}$.

Habitat in ovis *Mantidis* ex "Ile de France." D. V. Audouin.

In Mus. Westwood.

Sp. 7. *Palmon fraternus*, Westw.

Cæruleo-viridis, tenuissime punctatus; antennis crassiusculis, luteis, apice fuscescentibus; abdomine purpureo nitidissimo, subtus luteo, oviductu abbreviato, pedibus luteo-fulvis; coxis et femoribus posticis æneis vel chalybæis, apice extremo luteis (♂ ♀).

Long. corp. lin. $1\frac{1}{4}$.

Habitat cum præcedenti.

In Mus. Westwood.

Sp. 8. *Palmon obscurus*, Westw.

Niger, æneo-vix-tinctus, fere lævis, opacus; antennis nigris, basi articuli 1mi luteo, articulo apicali albido; abdomine nigro submetallico, nitido, oviductu corpore fere dimidio longiori; pedibus 4 anticis piceo-luteis, posticis nigricanti-æneis, dentibus validis, tarsis luteis (♀).

Long. corp. lin. $1\frac{1}{2}$.

Habitat King George's Sound. D. Dr. J. Hooker.

In Mus. Westwood.

Sp. 9. *Palmon melleus*, Westw.

Læte aurato-viridis, punctatissimus; abdomine melleo; antennis crassis, melleis, apice fuscis; pedibus melleis, coxis posticis basi viridibus spinisque femorum posticorum nigris (♂).

Long. corp. fere lin. 2.

Habitat in ovis *Mantidis Brasiliæ*. D. Klug.

In Mus. Westwood.

Sp. 10. *Palmon Olenus*, Walker, Mon. Chalc. 2, p. 7.

Æneo-viridis, antennis fulvis, abdomine cyaneo et cupreo-vario, subtus fulvo; pedibus fusco-fulvis, femoribus coxisque viridibus, tibiis fuscis, alis limpidis, oviductu rufo, vaginis nigris (♀).

Long. corp. lin. 2, exp. alar. lin. $2\frac{1}{2}$.

Habitat Sydney, New South Wales.

Subgenus novum, Pachytomus, *Westw.*

Palmoni congruit nisi abdomine maris plano depresso-elongato, spinisque femorum posticorum tantum 4,* articulo basali

* The figure at the left hand corner of the bottom of Plate X. represents the extremity of the fore tibiæ, with its tarsus.

tarsorum omnium dilatato, necnon œconomia specierum quæ in ficubus more *Blastophagorum* habitant.

Sp. 1. *Pachytomus Klugianus*, Westw.

Cupreo-æneus, tenuissime punctatissimus; antennis basi tantum luteis, abdomine piceo-fulvo, apice nigricanti; pedibus 4 anticis pallide flavescentibus, posticis piceis, geniculis luteis.

Long. corp. lin. $1\frac{1}{2}$.

Habitat in ficubus Ægypti. D. Klug.

In Mus. Westwood.

XLI. *On the Habits of the Genus* Sialis. *By* W. F. Evans, Esq.

[Read 25th April, 1844.]

As the habits of some of our most common insects appear to be little known, I have thought that the following observations on the natural history of the *Sialis lutarius* may probably be new and not entirely devoid of interest.

On the 25th of April I found, on the rushes round the margin of a small pond, a great many patches of eggs, and shortly observed many of the *Sialis lutarius* depositing them.

They form large patches of from two to three inches in length, generally encircling the whole rush near the top, but sometimes deposited on one side only, and extended to about a line in breadth.

I counted 100 in a square line, so that each batch may be fairly considered to contain from 2000 to 3000 eggs; the greater portion of which must consequently perish either in the egg or larva state; as, common as the insect is, and widely distributed throughout the country, we should be perfectly overwhelmed with the swarms of the perfect insect if such were permitted, when it is considered that round this one small pond there could not have been less than 100 patches of them.

The eggs are of a very singular form, and placed in a slanting position (Pl. XIX. fig. 4).

The females, whilst depositing them, appeared perfectly motionless on the rush, and varied considerably in size, being from five